

REMARKS

Claims 1-30 are pending in the present application. Reconsideration of the application is respectfully requested in view of the following responsive remarks. For the Examiner's convenience and reference, Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

In the office action of March 9, 2006, all pending claims were rejected under 35 U.S.C. § 103(a) over a number of references. The specific rejections were as follows:

(1) Claims 1, 7-9, 16, and 22-25 were rejected as unpatentable over Choy, et al. (EP 1 329 487) in view of Kowalski (U.S. Patent 6,536,893).

(2) Claims 2, 10-13, and 18 were rejected as unpatentable over Choy in view of Kowalski as applied to claims 1 and 17, further in view of Kitamura et al. (U.S. Patent 6,492,222).

(3) Claims 3, 19, and 26 were rejected as unpatentable over Choy in view of Kowalski and Kitamura as applied to claims 2 and 18, and further in view of Iwasaki et al. (U.S. Patent 6,800,588).

(4) Claims 4, 5, 20, and 21 were rejected as unpatentable over Choy in view of Kowalski, as applied to claims 1 and 17 and further in view of the disclosure of Ishikawa et al (U.S. Publication 2002/0175983).

(5) Claims 6, 14, 15, 27, and 28 were rejected as unpatentable over Choy in view of Kowalski and Ishikawa as applied to claims 4, 5, 20, and 21, and further in view of the disclosure of Tamagawa et al. (U.S. Publication 2003/0198885).

(6) Claim 29 was rejected as being unpatentable over Choy in view of Kowalski as applied to claim 17, and further in view of Tamagawa.

(7) Claim 30 was rejected as unpatentable over Choy in view of Kowalski as applied to claims 1 and 17 and further in view of the disclosure of Deguchi et al. (JP Application 63178798).

It is respectfully submitted that the presently pending claims be examined and allowed.

Rejections Under 35 U.S.C. § 103

The Examiner has primarily rejected claims 1-30 as being obvious in view of two references, Choy et al. (EP 1 329 487) in view of Kowalski (U.S. 6,536,893) and further in view of a number other references as discussed further below. The Applicant respectfully submits that these claims are patentable over the cited references for the reasons set forth below, and that the rejection should be withdrawn.

Before discussing the obviousness rejections herein, it is thought proper to briefly state what is required to sustain such a rejection. The issue under § 103 is whether the PTO has stated a case of *prima facie* obviousness. According to the MPEP § 2142, the Examiner has the burden and must establish a case of *prima facie* obviousness by showing the prior art reference, or references combined, teach or suggest all the claim limitations in the instant application. Further, the Examiner has to establish some motivation or suggestion to combine and/or modify the references, where the motivation must arise from the references themselves, or the knowledge generally available to one of ordinary skill in the art. The Applicant respectfully asserts the Examiner has not satisfied the requirement for establishing a case of *prima facie* obviousness in any of the rejections. The Applicant submits that, in general, the cited references fail to teach or suggest each and every element of the present invention and fail to provide motivation for the various combinations of references cited.

The present invention is drawn to the use of post-calendering on images printed with ink-jet ink on offset media. The invention provides a system comprising ink-jet ink and offset media, as well as a calendering device configured to apply pressure (and optionally heat) to the media after printing. The invention also provides a method comprising ink-jetting an ink-jet ink onto offset media and applying pressure to the printed image such that a physical property of said image is altered by the pressure.

1. The Examiner has rejected claims 1, 7-9, 16, 17, and 22-25 as unpatentable over Choy in view of Kowalski. The Applicant respectfully submits that (a) combining these references does not yield each and every element of the present invention as claimed in claims 1 and 17; (b) there is a lack of motivation provided in

these references to combine them; and (c) when the present invention is viewed as a whole, the further limitations in claims 7-9, 16, and 22-25 are not obvious in view of these references.

Choy and Kowalski, both singly and in combination, fail to teach the elements of the present invention, i.e. the printing of aqueous ink-jet inks on offset paper where pressure and optionally temperatures are applied to the printed image via a calendering device.

Kowalski in particular is directed to quite different materials than the present invention. These differences are significant, because the methods disclosed in Kowalski are not appropriate for use with the inks and media to which the present invention is directed. Furthermore, Kowalski does not teach or suggest the calendering process of the present invention.

The Kowalski disclosure teaches the use of a specific kind of ink that is different from those of the present invention. The ink disclosed in Kowalski is a "water-insoluble dye from the class of dyes known as solvent, or disperse, dyes." Col 2, lines 37-38. The disclosure goes on to point out the invention is particularly directed to "a sub-class of solvent dyes known as sublimation dyes." Col 2, lines 41-42. Dyes of this type comprise water-insoluble micro-particulate solids. It is known in the art that high temperature is usually required to induce disperse dyes to diffuse into a substrate.

Similarly, Kowalski does not teach printing on commercial offset paper. The invention disclosed in Kowalski is directed at printing on "common print media," and "especially plain paper." Col 1, lines 42-43; col 5, line 64. While the disclosure states that the medium may be coated, it does not teach the use of commercial offset paper. Commercial offset papers, are "significantly different than office plain papers," and other papers designed for ink-jet printing. Pg 1, lines 27-28; see also Choy et al. paragraph 0007, lines 44-45. As such, even coated plain papers are not equivalent to commercial offset paper. Offset coatings are different from coatings designed for ink-jet printing, with offset coatings being typically more hydrophobic. Pg 2, lines 2-5. In other words, offset coated media is not a traditional ink-jet media, as it tends to repel aqueous inks due to their hydrophobicity.

Likewise, the methods provided by Kowalski, because they are directed to different materials, are very different from the methods of the present invention. The

present invention as recited in claims 1, 16, 17, and 24 provides a system and method for printing durable ink-jet images with offset media, ink-jet ink, and the application of pressure, such that a physical property of the image is altered by the pressure. As such, this requires the application of a pressure that is sufficient to produce such an alteration. The present invention as claimed in 7-9, 24, and 25 further comprises the application of heat to the printed image. The heat contributes to the alteration, though the alteration always occurs in the presence of the pressure.

In contrast, the method disclosed in Kowalski comprises jetting a disperse dye onto common print media and then applying temperatures of 180-220 °C to the printed media. These high temperatures are needed to cause the water-insoluble micro-particles of disperse dye to disintegrate and the volatile dye molecules to diffuse into the media. While the application of pressure in Kowalski further enhances the process (likely by improving the contact between the heating system and the printed surface), it does not occupy a principal role in accomplishing the aim of the invention. This is evidenced by the low pressures recited in Kowalski (only 3-40 psi). One having skill in the art would recognize that the range of pressures taught in Kowalski would be insufficient to accomplish an alteration of a printed image due to the pressure in accordance with the present invention. See also pg 15, line 20-22. In addition, use of excessive heat in calendering images printed with the inks and media of the present invention would cause the image to transfer from the media to the calendering device. Pg. 15, lines 22-24.

The Kowalski disclosure must be viewed as a whole. When viewed as such, the use of high temperatures and low pressures disclosed in Kowalski do not teach or suggest the calendering process of the present invention.

Choy, on the other hand, is directed to providing ink-jet inks *per se* that perform acceptably on offset media. Choy discloses aqueous ink-jet inks that may comprise dyes or pigments; water-soluble pigments are preferred. Paragraph 0024, lines 25-27. The inks disclosed in Choy are specifically formulated for printing on offset media. See Summary, also paragraph 0017, line 40. As discussed above, commercial offset papers are “significantly different than office plain papers,” and other papers designed for designed for ink-jet printing. Paragraph 0007, lines 44-45.

The Choy and Kowalski reference provide one skilled in the art no motivation to combine them. Choy teaches that printing on offset media with excellent quality

and bleed control may be accomplished with inks comprising water-soluble colorants and at least one aprotic polar solvent. One having skill in the art would not be motivated to modify the printing system of Choy by employing methods required for impressing disperse dyes such as those disclosed in Kowalski.

Furthermore, the methods disclosed in Kowalski are not appropriate for use with these materials; in fact they would produce undesirable results if combined with Choy. Particularly, applying the high temperatures recited in Kowalski (a) when used with the ink of Choy, would cause the printed image to be transferred to the calendering device; and (b) could cause the coating of the offset media to swell and blister. The Applicant submits that one having skill in the art would find no motivation to combine Choy and Kowalski and would have no reasonable expectation that such a combination would be successful.

The Examiner has also asserted that it would be obvious to arrive at the pressure and temperature ranges recited in claims 7-9, 23, and 25 from those in Kowalski through routine testing. However, the Applicant submits that this is not a proper basis for a finding of obviousness with regard to these claims. In determining obviousness, each prior art reference must be viewed in its entirety. When Kowalski is viewed as a whole, the temperatures and pressures recited therein are particular to the materials and aims of that disclosure. One having skill in the art in printing with the disperse dyes in Kowalski would not employ the low temperatures and high pressures of the present invention, as that would be contrary to the accepted wisdom in the art.

The Examiner's rejection of claim 22 is inappropriate for a similar reason. The invention found in claim 22 includes all of the claim limitations in claim 17 as well. The limitations in claim 22 cannot be viewed in a vacuum, but should be considered as a whole along with all of the elements from the independent claim. A more appropriate inquiry is whether the combination of all of the elements claimed in claims 17 and 22 is obvious. The Applicant submits that because the cited prior art does not teach or suggest all of the claimed elements of claim 17, the recitation of the limitation in claim 22 in the prior art reference does not itself render claim 22 obvious.

2. The Examiner has also rejected claims 2, 10-13, and 18 as unpatentable over Choy in view of Kowalski as applied to claims 1 and 17, further in view of U.S. Patent 6,492,222 to Kitamura et al. The Applicant submits that, for the reasons discussed above, Choy and Kowalski neither disclose nor suggest each and every element of the invention claimed in claims 1 and 17. Therefore the Kitamura disclosure can not render obvious the further limitations recited in claims 2, 10-13, and 18 of the present invention. These limitations must be considered as a whole with the elements of the independent claims. This being stated, such an inquiry is not thought necessary in view of the responsive discussion related to claims 1 and 17. The Applicant therefore requests that these rejections be withdrawn.

3. The Examiner has also rejected claims 3, 19, and 26 as unpatentable over Choy in view of Kowalski and Kitamura as applied to claims 2 and 18, and further in view of U.S. Patent 6,800,588 to Iwasaki et al. The Applicant submits that, for the reasons discussed above, Choy and Kowalski neither disclose nor suggest each and every element of the invention provided in claims 1 and 17, upon which claims 2 and 18 depend. Claim 3 adds further limitation to claim 2, as do claims 19 and 26 to claim 18. Therefore, as with claims 2 and 18, claims 3, 19, and 26 must be considered as a whole with the elements of independent claims 1 and 17. Having stated this, an inquiry into the obviousness of claims 3, 19, and 26 is not thought necessary in view of the responsive discussion related to claims 1 and 17. The Applicant therefore requests that these rejections be withdrawn.

4. The Examiner has also rejected claims 4, 5, 20, and 21 as unpatentable over Choy in view of Kowalski as applied to claims 1 and 17 and further in view of the disclosure of Ishikawa et al (U.S. Publication 2002/0175983). The Applicant submits that, for the reasons discussed above, Choy and Kowalski neither disclose nor suggest each and every element of the invention claimed in claims 1 and 17. In the absence of a teaching or suggestion in Choy and Kowalski of the calendaring process of the present invention, it is not necessary to inquire into the obviousness of the further limitations recited by claims 4, 5, 20, and 21. The Applicant therefore requests that these rejections be withdrawn.

5. The Examiner has rejected claims 6, 14, 15, 27, and 28 as unpatentable over Choy in view of Kowalski and Ishikawa as applied to claims 4, 5, 20, and 21 and further in view of the disclosure of Tamagawa et al. (U.S. Publication 2003/0198885). The Applicant submits that, for the reasons stated above, Choy and Kowalski neither disclose nor suggest each and every element of the invention provided in claims 1 and 17, upon which claims 4, 5, 20, and 21 depend. As with these claims, the limitations in claims 6, 14, 15, 27, and 28 must be considered as a whole with the elements of independent claims 1 and 17. Having stated this, this inquiry is not thought necessary in view of the responsive discussion related to claims 1 and 17. The Applicant therefore requests that these rejections be withdrawn.

6. The Examiner has also rejected claim 29 as being unpatentable over Choy in view of Kowalski as applied to claim 17, and further in view of Tamagawa. For the reasons stated above, Choy and Kowalski neither disclose nor suggest each and every element recited in claim 17. The limitation in claim 29, as it depends from claim 17, must be considered as a whole with the elements of claim 17. Therefore an inquiry into the nonobviousness of claim 29 is not thought necessary in view of the responsive discussion related to claim 17.

In any event, the present invention as claimed in claim 29 provides for the application of pressure to media on which an image has already been printed, so as to alter the profile of the printed image. Pg. 7, lines 8-10. In contrast, the calendering treatment in Tamagawa to which the Examiner refers is employed in manufacturing a recording material support to produce a smooth surface, where the recording material has not yet received an image. As the Tamagawa reference is concerned with manufacturing recording material, one having skill in the art and faced with the task of printing an image would not be motivated to combine it with Choy and Kowalski. Furthermore, even if Tamagawa were combined with Choy and Kowalski, said combination would not yield the presently claimed method. For these additional reasons, the Applicant respectfully requests that these rejections be withdrawn.

7. The Examiner has also rejected claim 30 as unpatentable over Choy in view of Kowalski as applied to claims 1 and 17 and further in view of the disclosure of Deguchi et al. (JP Application 63178798). The limitations in this claim must be

considered as a whole with the elements of claims 1 and 17. The Applicant submits that, for the reasons discussed above, Choy and Kowalski neither disclose nor suggest each and every element of the invention claimed in claims 1 and 17. Therefore, combining the Deguchi disclosure with Choy and Kowalski, if this were possible, could not render obvious the further limitation recited in claim 29.


In any event, the Applicant submits that the references provide no basis for motivation to combine them. The application of pressure as provided by the present invention is directed to impart increased flow to a printed image, in which more uniform intermixing of colorant may be achieved. In the Deguchi disclosure, as presented in the Purpose and Constitution, pressure is used to flatten semi-solid lumps of ink without changing their shape. To one skilled in the art, the process disclosed in Deguchi would not suggest imparting "flow" to an image in accordance with the present invention. For these reasons, the Applicant therefore respectfully requests that these rejections be withdrawn.

In view of the foregoing, Applicants believe that claims 1-30 present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone W. Bradley Haymond (Registration No. 35,186) at (541) 715-0159 so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 08-2025.

Dated this 9th day of June, 2006.

Respectfully submitted,



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